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SUBJECT: IRAQI MINISTER OF ELECTRICITY INVITES SECRETARY OF ENERGY TO BAGHDAD FOR DISCUSSIONS

This message contains an action request .

11. Summary and action request: Iraq's Minister of Electricity passed ITAO a letter of invitation to US Secretary of Energy Chu to come to Iraq for bilateral discussions of four Iraqi power sector challenges: power plant construction, Iraq's participation in global emissions reductions, solar and renewable technology and mentoring of young Iraqi professionals in the sector. Minister Dr. Karim W. Hasan's letter suggests this meeting as the first in an on-going set of discussions between the agencies on how to help Iraq rebuild its own electric-power infrastructure. Minister Karim asked us to help translate the text of the letter and to deliver it to Secretary Chu. Informal Embassy translation is at para 2. A signed hard-copy from the Minister will be forwarded by pouch. We request that the Department pass this letter to the Department of Energy. End summary and action request.

$\P 2$. Begin Embassy informal translation: Dear Secretary Chu:

Permit me to welcome you to the fraternity of national energy ministers. I know you will find your work both challenging and of genuine importance to the people of the United States and of the entire world.

We have not yet had the opportunity to meet and the purpose of my letter is to extend my invitation to you to visit Iraq so that we can discuss in detail a number of initiatives in which I believe we can have a deeply shared interest. While you and I may face somewhat different issues at the moment, we come from similar viewpoints I believe. We are both professionals in the energy arena and neither of us is a politician (although we both now live in the political and governmental world). Although my academic and research career is not nearly as distinguished as yours, I have had the great pleasure of serving on the faculty of the University of Technology, Baghdad and mentoring some outstanding young people as they have pursued their advanced degrees in the engineering sciences.

As President Obama has charged you with leading the United States in revolutionizing its approach to energy production and use, so too have I been a assigned a historic mission by Prime Minister Nouri al-Maliki and our Council of Ministers and Council of Representatives. Iraq has embarked on what may be the most ambitious national electrification program since the undertakings of your country during the New Deal of President Franklin Roosevelt. And, we are starting this journey from quite a different spot than one might think from reading the news about Iraq. Two decades ago, before my nation's affliction by dictatorship, war and international sanctions, Iraq had the most developed electric network in the Middle East. Iraq's grid and its power plants were well designed and built and professionally operated. Not only was there sufficient power, Iraq was actually a net exporter of electricity. It is my personal and professional goal to achieve that status once again, but to do so in a thoroughly modern way, with concern for the environment and using cutting edge technology.

I do realize, of course, that Iraq is not an island and that we cannot reach our goals by ourselves. There are four areas of concern about which I hope this letter can initiate communication between the two of us on an ongoing basis. These are:

- 1) Power Plant Construction
- 2) Participation in Global Emissions Reductions3) Deployment of Solar Technology

4) Mentoring of Young Iraqi Energy Professionals.

Power Plant Construction

My Ministry has worked closely with the United State Embassy in Baghdad over the past several months to conclude contracts for 80 QBaghdad over the past several months to conclude contracts for 80 gas turbines with total nameplate generating capacity of approximately 10,000 MW. One of these transactions is regarded by General Electric as the largest single such deal in its history. There are many challenges as we proceed over the next several years to install and operate these units. This program is intended to bring production into balance with consumer demand that has grown dramatically in the past six years.

One of the most important problems is that while these new turbines are designed to operate most efficiently and cleanly on natural gas, Iraq's system for the collection and treatment of gas associated with oil production is woefully inadequate. Therefore, we expect that many of these turbines will need to utilize heavy fuel oil at the outset. While progress is now being made in the development of the collection and treatment facilities, more should be done and done more quickly. Shell has recently commenced such a program in cooperation with South Gas Company, a division of the Iraq Ministry of Oil.

Our most significant difficulty at the moment is that the magnitude of our generation program is such that the Ministry itself is not in the position to carry out construction, commissioning and operation of the entire project. In addition, the dramatic decline in oil prices means that Iraq does not have the funds necessary finance the installation of all of the turbines that are being purchased. Therefore, we are seeking foreign inward investment in electricity projects. We are prepared to exert every effort to work with high-quality international independent power plant developers to develop, own and operate projects using the turbines. I believe that both of these areas are ones in which your Department may be in a position to offer advice, introductions and even

advocacy.

Deployment of Solar Technology

Although Iraq is one of the sunniest places on earth, we have not yet been in a position to aggressively deploy solar technology appropriate to our situation. It is important to note, however, that over the past two years, Iraq has carried out an interesting and successful application of solar technology. In Baghdad and in Ar Ramadi, we installed 10,000 solar street lights that helped to deter criminal elements and thereby help law-abiding people reclaim their neighborhoods in the evening. In my opinion, there is substantial potential in Iraq for significant expansion of solar powered outdoor lighting and for the deployment of solar units suitable for rural areas for such varied purposes as water pumping, indoor appliances, water purification and powering of computers and other equipment in schools. While my Ministry can identify solar opportunities in a general way, I believe that the assistance of your Department would allow Iraq to move ahead much more rapidly and to make the correct choices in deploying solar.

Participating in Global Emissions Reductions
One of the most important challenges for Iraq's electricity system is to provide natural gas for use in turbines in order to get away from heavy fuel oil which produces far more harmful emissions.
About two-thirds of current available gas is being wastefully flared and it is estimated that these supplies alone could power 6,000 MW of turbine generation. By collecting and treating this gas and using it to displace polluting heavy fuel oil, Iraq can substantially reduce the emissions associated with meeting the electric needs our people. Again, however, while we can identify the proper general course, I would ask that you consider ways in which the expertise resident in your Department can be of assistance. One area of particular interest is whether Iraq could participate in carbon emission reduction markets such as those operating in Europe and which I expect will soon be authorized in the United States. Iraq could earn funds by reducing its emissions and then apply those funds to further efficiencies in our electrical system.

Mentoring Young Iraqi Energy Professionals
It is often accurately pointed out that Iraq has had a brain drain for many years due to the strife in our country. However, it is less well understood that Iraq is a young country from a demographic point of view, with almost 40% of our population under age 15. Many of these young people have had good elementary and secondary educations and have knowledge of English. In addition, in the midst

of our suffering, our colleges and universities have continued to operate and our science, engineering and technical programs are still well-regarded. Nonetheless, our young people do not have the sort of access to mentoring and professional development that they and Iraq need. I am most interested in discussing with you the development of opportunities for young energy professionals to participate in mentoring programs and internships and on-the-job training that will help them to bring back skills and to transfer knowledge to other young people here in Iraq, especially within my Ministry and in the private energy sector.

Finally, Mr. Secretary, I wish you well in all of your endeavors and hope that we can meet soon here in Baghdad. You will find Iraq a far different place than you might expect and I sincerely wish to work with you in developing my country and in advancing the cause of environmentally conscious energy production and use.

Comment: We believe this letter is best understood in the context of Minister Karim's efforts within the GOI to improve Qcontext of Minister Karim's efforts within the GOI to improve coordination between his Ministry of Electricity and the Ministry of Oil. His letter pinpoints the immediate hurdle the Ministry of Electricity (MoE) faces: the lack of sufficient funds to finance and expertise to execute the construction of the multi-billion dollar generation assets it has purchased. But Karim is also attempting to engage the USG in a process to clear the central impediment to Iraq's execution of a national energy strategy: the lack of planning coordination between the MoE and the Ministry of Oil (MoO) in the design, construction and fueling of the power plants scheduled to double Iraq's power production in the next three years. Karim raises environmental concern as a catalyst to fuse a necessary joint MoE and MoO planning exercise; and wishes to leverage the US DOE to do it. Even the most minimally efficient electric power plants would require that MoO play a very active role in MoE's planning process. If Karim can frame the conversation of the construction campaign within the context of environmental concerns, he may be able to induce MoO's participation because the solution necessitates consideration of using flared associated and natural gas to power the new generators. Getting DOE buy-in would provide Karim with yet another pressure point to press MoO into investing its capital to help build the electric power infrastructure. End comment. Butenis